

### **AMENDMENTS TO THE CLAIMS**

The listing of claims below replaces all prior versions of claims in the application.

1. (Cancelled)

2. (Cancelled)

3. (Currently Amended) ~~The~~ An image matching device according to claim 1, for at least one of automatically estimating motion in a motion picture and automatically detecting a corresponding point between stereo videos formed of a left eye and right eye images, comprising:  
matching means for performing a matching processing upon a video;  
characteristic amount extraction means for extracting a characteristic amount of a matching information signal (vector) output from the matching means; and  
conversion parameter determination means for determining a parameter for a motion estimation processing upon an input video or a parameter for a detection processing of the corresponding point between the left eye and right eye images based on the characteristic amount,  
wherein the matching means performs the matching processing by using the parameter determined in the conversion parameter determination means, and  
wherein the matching means performs the image matching processing by an iterative gradient method in which a differential vector calculated based on a horizontal and vertical

gradients of a pixel value and the difference between motion-compensated fields (frames) by the initial displacement motion vector is multiplied by the conversion parameter determined in the conversion parameter determination means and the result of multiplication is added to the initial displacement motion vector, so that a vector is obtained.

4. (Cancelled)

5. (Currently Amended) ~~The~~ An image matching device ~~according to claim 1,~~ for at least one of automatically estimating motion in a motion picture and automatically detecting a corresponding point between stereo videos formed of a left eye and right eye images, comprising:

matching means for performing a matching processing upon a video;

characteristic amount extraction means for extracting a characteristic amount of a matching information signal (vector) output from the matching means; and

conversion parameter determination means for determining a parameter for a motion estimation processing upon an input video or a parameter for a detection processing of the corresponding point between the left eye and right eye images based on the characteristic amount,

wherein the matching means performs the matching processing by using the parameter determined in the conversion parameter determination means, and

wherein the matching means performs the image matching processing by an iterative gradient method in which a number is added to or subtracted from a differential vector calculated

based on a horizontal and vertical gradients of a pixel value and the difference between motion-compensated fields (frames) by the initial displacement motion vector and the resultant added or subtracted value is added to the initial displacement motion vector, so that a vector is obtained.

6. (Cancelled)

7. (Withdrawn) The image matching device according to claim 3, wherein the matching means comprises means for determining whether or not a denominator when calculating the differential vector calculated based on a horizontal and vertical gradients of a pixel value and the difference between motion-compensated fields (frames) by the initial displacement motion vector is smaller than a predetermined threshold, and the conversion parameter is determined so that a degree of contribution of the differential vector is small if the denominator is smaller than the threshold.

8. (Cancelled)

9. (Withdrawn) The image matching device according to claim 5, wherein the matching means comprises means for determining whether or not a denominator when calculating the differential vector calculated based on a horizontal and vertical gradients of a pixel value and the difference between motion-compensated fields (frames) by the initial displacement motion vector is smaller than a predetermined threshold, and the added or subtracted number is determined so

that a degree of contribution of the differential vector is small if the denominator is smaller than the threshold.

10. (Cancelled)

11. (Withdrawn/Currently Amended) The image matching device according to ~~claim 1~~  
claim 3, wherein the characteristic amount of the matching information signal (vector) is a  
variance of a vector.

12.-18. (Cancelled)